CUBIT Capability Proposal

Technical Area Geometry, Meshing, Infrastructure, GUI, Graphics, etc..	**Technical Lead** Cubit Developer in charge of technical area
Infrastructure	Darryl

MRD Description

Describe the capability in terms of how a user would see it.

Ability to drive CUBIT with Python

SRS Description

What needs to be done by Cubit developers to implement this capability? Break the tasks into steps if applicable. (Steps should be on the order of 2 man-weeks or more)

Expose CUBIT capabilities and entities as Python objects. At a minimum, users would be able to do what they can do with the command line, including aprepro, but entirely within Python (sending a text string command as we currently do doesn't count).

1. Identify objects, properties, and functions to be exposed
2. Design and implement

Justification

Describe why this is important and what impact it will have if it is implemented. (or not implemented).

CUBIT's command language (what we currently use in journal files) is quite limited. One big problem is that it isn't well structured, and as such it isn't easily extensible. It's hard to add new language features without messing up existing commands. One alternative is to add flexibility and power to CUBIT's scripting interface by using existing tools and languages, such as Python. Python is well-structured, extensible, and is familiar to many tech-savvy users. Once a Python interface to CUBIT is in place, it can be extended beyond our current capabilities much more easily than our current parser can (a parser rewrite would partially fix this problem, but we'd still be rolling our own language instead of leveraging a standard language supported by others). In particular, we could expose data useful for testing purposes.

Note that this task would be best tackled after a CUBIT API is in place (submitted as a separate proposal). However, the Python interface would probably access more of CUBIT than just the API.

Also note that in order to continue to support journal files, we would still need a non-Python parser in CUBIT.

Resources Who will work on this	**Time estimate** How much time will it take in man-weeks	**Targeted Release** 10.2 (August 06), 10.3 (March 2007), 10.4 (August 2007), Future (beyond FY07)
Some ETI folks	16 weeks	10.3

Submitted By:	**Date:**
Darryl	3/28/06